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June 16, 2017

Ms. Debra Thomas
Acting Regional Administrator, Air Program
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202

Re: Required Report on SO_2 Emissions Changes for Consent Decree Sources

Dear Administrator Thomas:

EPA's Data Requirements Rule (DRR, 80 FR 51052) was promulgated to produce SO_2 concentration data to inform decisions on designations for the 2010 1-hour SO_2 National Ambient Air Quality Standard (NAAQS). Because of the tendency of SO_2 concentrations to be highest near larger sources of SO_2, EPA designed the DRR to require collection of SO_2 data near larger sources. The final version of the DRR allowed for States to fulfill their requirements using data based on either ambient monitoring or dispersion modeling. Of the sources required to produce SO_2 data for the DRR in North Dakota, only one chose to produce data based on ambient monitoring. All of the other DRR sources chose to produce SO_2 data using dispersion modeling. This letter will address requirements for SO_2 sources that produced data using dispersion modeling.

Because of a lawsuit filed by the Sierra Club and Natural Resources Defense Council, requirements to produce SO_2 data for designations proceeded in stages. The outcome of that lawsuit was a Consent Decree on March 2, 2015, that accelerated the data submission and designation schedule for certain sources. In North Dakota, the SO_2 sources that were required to submit SO_2 data earlier because of the Consent Decree (CD) were: Coyote Station, Coal Creek Station (CCS), and Leland Olds Station (LOS). CCS and LOS are close enough to each other that they were included in the same modeling analysis. Because of its proximity to LOS and CCS, the DRR source Stanton Station was also included in the same modeling analysis as a nearby source. Stanton Station was not required by the CD to produce SO_2 data early, but it would have been required later as a DRR source. The modeling for LOS and CCS thus included maximum impacts from Stanton, which also informed designation decisions for Stanton Station.

The required modeling analyses for these sources were submitted to EPA by the CD's deadline, April 19, 2016. EPA approved the modeling analyses and their SO_2 data, and, based on that data, EPA made the decision to designate areas of North Dakota surrounding these sources as "unclassifiable/attainment" for the 1-hour SO_2 NAAQS, in a letter from Gina McCarthy to Governor Dalrymple on June 30, 2016.

According to the DRR (80 FR 51088), if an SO_2 source used allowable emissions in modeling to successfully demonstrate compliance with the SO_2 NAAQS, then the State is not required to submit future annual reports for that source. However, if an SO_2 source used actual emissions, as allowed by the DRR, to produce SO_2 data to support a designation decision, then the DRR requires additional action by the State to track the source in the future to make sure its emissions don't increase enough to exceed the 1-hour SO_2 NAAQS. EPA settled on tracking a source's actual emissions in the future to make sure it doesn't exceed the NAAQS.

Of the four sources (plants) addressed in the CD modeling analyses, three used actual emissions (Coyote, CCS, Stanton), while LOS used allowable emissions. Because LOS's owner, Basin Electric Power Cooperative, installed wet scrubbers and a new 600-foot stack in the middle of the 3-year period modeled (2012-2014), they didn't have three consecutive years of data using the new wet scrubber, which would be representative of current and future emissions at the plant. Following the recommendations of the North Dakota Department of Health (NDDH) and EPA, Basin Electric used a Best Available Retrofit Technology (BART) permit allowable emission rate in their modeling analysis.

After EPA commented that the emission rate used was based on a 30-day rolling average and didn't account for higher peak 1-hour emissions, Basin Electric decided to use a much higher value to represent likely highest peak 1-hour emission rates. The value modeled was 3.33 times higher than the 30-day rolling average value, based on recorded emissions data for that period of 2013-2015. After revised modeling was submitted in March 2016 with this change in emission rate, EPA then accepted the revised modeling analysis and issued a designation of "unclassifiable/attainment" for the area based on this revised modeling on June 30, 2016.

Based on this information, LOS should not need to be addressed in this or future emissions tracking reports for the DRR, because of using allowable emissions for their sources in their modeling analysis. This was confirmed by Adam Clark of your staff in a recent conference call on May 23, 2017. Given this, LOS has conservatively demonstrated compliance with the 1-hour SO_2 NAAQS in a conservative analysis and need not be addressed further for compliance with the SO_2 NAAQS based on the DRR. The other three sources addressed in this report used actual emissions, so they will be addressed here.

The DRR (80 FR 51088) requires that, for sources that demonstrated compliance with the NAAQS using modeling based on actual emissions, the State must submit an annual report to EPA by July 1 starting the calendar year after a source's initial designation. Since the North Dakota sources Coyote, CCS, and Stanton (not LOS), demonstrated compliance with the 1-hour SO_2 NAAQS using actual emissions data, the State must submit an annual report to EPA that documents each source's annual emissions and provides an assessment for the cause of any emissions increase from the previous year.

For the CD analysis, this essentially consists of addressing those sources' documented changes in emissions compared to what was used in the sources' modeling analyses. If the most recent year's annual emissions are lower than what was modeled, then the source's concentrations should still comply with the 1-hour SO_2 NAAQS. If the most recent year's annual emissions are higher than what was modeled, then the State must evaluate the emissions change to determine if the SO_2

NAAQS is still maintained given the higher emissions or whether new modeling should be done to check the status of the source with increased emissions. Specifically, according to the DRR, the State must include a recommendation of whether additional modeling is needed to characterize air quality in the area to determine if the area still meets the SO_2 NAAQS.

Our report in this letter is intended to fulfill those requirements in the DRR to track the change in actual emissions from sources that were modeled to show compliance with the SO_2 NAAQS using actual emissions, and to make a recommendation on whether additional modeling may be necessary to ensure that those modeled sources still meet the NAAQS. The two CD sources Coyote and CCS will be addressed, as well as the DRR source Stanton Station, because it was modeled to show compliance in these analyses too.

These sources were modeled using hourly emissions based on their Continuous Emissions Monitoring System (CEMS) data. The most recent three years of data at the time, covering the 3-year period 2012-2014, were used in the modeling analyses. Thus, the most recent year of emissions data will be compared with these three years' data in this report. The DRR specifies that the annual emissions total in tons for the DRR sources should be compared in this report.

The DRR specifies that the comparison of the annual emissions from the modeled years should be with annual emissions from "the previous year." Based on this, it appears that annual emissions for the years 2012-2014 should be compared with annual emissions for the year previous to the current year, in other words 2016. A conference call with Adam Clark at EPA Region 8 on May 23, 2017, confirmed that EPA would like to see a comparison using only total annual emissions, but updated that guidance in a conference call on June 12, 2017, that any more recent year's emissions data should be compared with the annual emissions for only the most recent year modeled, in this case for 2014. Adam expressed a preference for using data from CAMD, i.e., EPA's Clean Air Markets (CAM) Division's Air Markets Program Data (AMPD), accessible through EPA's website, to make this comparison.

The NDDH has accessed the CAM AMPD database, downloaded the relevant data, and evaluated the data for annual SO_2 emissions. The data on the AMPD include all North Dakota electrical generating units (EGUs) reporting for a given year. The most recent year of data on AMPD is for 2016, so emissions data for the most recent year modeled, 2014, will be compared to all more recent years of data available, i.e., for 2015 and 2016 (confirmed on June 12, 2017). During both calls with Adam Clark, he stated that the combined emissions for all units at a particular plant should be addressed, not from each individual unit. Thus, the emissions addressed for CCS and Stanton will be the combined emissions for both boilers at each plant (Coyote only has one boiler).

The relevant data for Coyote, CCS, and Stanton are displayed in Table 1 below for comparison. The table includes the annual totals extracted from the AMPD database referred to above for the five years 2012-2016. Emissions for CCS and Stanton in the table are the total plant emissions for both plants.

Table 1. Annual Total SO_2 Emissions (tons) for Modeled and More Recent Years

Year	CD/DRR Source		
	Coyote	CCS	Stanton
2012	10639.4	16272.7	2378.8
2013	12579.2	15581.2	2030.3
2014	12777.1	15824.4	2590.9
2015	8786.0	15442.8	2164.3
2016	11872.9	13275.9	2479.0

In the call with Adam Clark on June 12, 2017, he suggested that emissions data for all relevant years could be included in this table for reference, but that data for only the most recent year modeled, 2014, needs to be compared with emissions data for more recent years. Therefore, data for the three years modeled, 2012-2014, have been included, as well as the more recent years 2015 and 2016, but only data for 2014 need to be compared with the two more recent years, 2015 and 2016.

Table 1 indicates that there is much variability in emissions for these plants from year to year, but the trend in recent years is generally downward. Nevertheless, Table 1 also shows that, for all three plants, the annual emissions for the more recent years 2015 and 2016 are lower than the emissions for the most recent year modeled, 2014. Thus, by EPA's recommended procedure for this update, the updated design values (i.e., maximum concentrations specific to the NAAQS) for all three plants should be lower than what was modeled in the CD modeling analyses used for NAAQS designations, maintaining compliance with the 1-hour SO_2 NAAQS in the areas surrounding these plants.

If the design values for these plants still comply with the 1-hour SO_2 NAAQS using more recent emissions data, there is no need to update the modeling analyses for these plants. Consequently, the NDDH does not recommend performing any updated modeling analyses for these plants at this time.

Just for reference, we note that Stanton Station's owner/operator Great River Energy (GRE) shut down Stanton Station permanently on February 25, 2017. Even though Stanton Station's permit to operate has not yet been revoked, there is no information to suggest that GRE will ever operate Stanton Station again. Stanton will be addressed for any necessary requirements for the time being, but at some time in the future, emissions from Stanton Station will no longer be an issue.

Given the above information, it seems clear that the three plants that were modeled using actual emissions in the Consent Decree (CD) modeling analyses in North Dakota should exhibit lower design values for more recent years of data available, maintaining compliance with the 1-hour SO_2 NAAQS. Thus, the NDDH believes it has fulfilled the DRR's requirement for the current year to address the impact of more recent emissions for sources that addressed the DRR using modeling based on actual emissions.

If you or your staff have any questions about this report or wish to discuss anything further, feel free to get in touch with us at the NDDH. Our phone number is (701) 328-5188.

Sincerely,

Terry L. O'Clair, P.E.
Director
Division of Air Quality

TLO/RJW:csc